

**Appendix C**  
**Structural Engineer's Report**

**Robert Silman Associates**

**First Unitarian Society of Plainfield**  
**Plainfield, New Jersey**  
**RSA #12454**

**Summary of Observations and Recommendations Regarding the Structural Conditions of the**  
**First Unitarian Society of Plainfield**

**Report Date: February 24, 2008**  
**Addendum: February 11, 2008**

**Report prepared for:**

**Historic Building Architects**  
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## **Introduction**

This report provides a brief discussion and summary of observations and recommendations by Robert Silman Associates (RSA) of the structural conditions at the First Unitarian Society of Plainfield in Plainfield, New Jersey. This report is based on a site visit on October 16, 2001, during which time a visual examination of the building was performed. Those present at the site during observations included Edmund Meade and Julie J. Cridland of RSA, George Gowan and Gerald Heinzer of the First Unitarian Society of Plainfield (FUSP) and Annabelle Radcliffe-Trenner and Abby Jaroslow of Historic Buildings Architects (HBA). Probes were completed at a later date. See the probe summary attached at the end of this report for additional comments.

The purpose of our visit was to observe the existing conditions of the structural elements of the Church, Parish Hall, and the Stevens Wing and make some initial recommendations for further investigation and identify any deteriorated areas related to structural conditions.

The process included making observations, taking photographs and noting general conditions of all visible structural elements. The following structural elements were examined at each building:

- Roof structure
- Exposed and accessible interior structural framing
- Masonry conditions, the exterior appurtenances
- Porches and terraces
- Basement and foundation conditions

The review by RSA was limited to the exposed and accessible conditions only. This visual examination allows for the identification of components that are deteriorated, showing signs of excessive stress or require closer examination. This form of inspection is not fully conclusive, but rather leads to identifying areas that may need further investigation and probes.

The focus of the review was on the main structural elements of each building, primarily the foundation conditions and the bearing walls and columns. The condition of the attic spaces was not fully reviewed at each building due to inaccessibility. The following are the preliminary observations and recommendations for further investigation.

## **Church**

The existing Church is a single story, approximately thirty-foot tall structure with a pitched roof (See Photograph 1). The building is wood framed with bearing stone masonry exterior walls. It is laid out with a rectangular footprint, approximately 53 feet by 63.

The first floor framing and basement is laid out with 5 rows of 5 bays below the Church floor. The floor construction is wood decking on 2 inch by 9 ¾ inch wood joists at 16 inches on center. The joists are supported by wood girders ((3) 2 inch by 9 ¾ inch wood members) spanning to brick masonry piers and exterior stone masonry foundation walls. A large portion of the southwest corner of the basement is unexcavated earth.

The main level structural framing consists of wood posts on masonry piers below supporting timber roof trusses above. Faux arches along each side of Church sanctuary enclose the posts. The side aisles to the north and south include window openings at the exterior masonry walls and there is an additional masonry half hexagonal shaped room that extends out at the northeast corner, referred to as the Minister's Room. The raised and partially recessed altar area at the west end projects beyond the Church footprint into the Parish Hall space. The east end of the church includes the large stained glass Robinson Window flanked by masonry towers on each side. The building entrances include a porch entrance to the north (see Photograph 1) and a recessed porch entrance at the southeast corner. An additional interior entrance into the Church has been added to connect the original structure to the Parish Hall at the northwest corner.

The roof structure is wood deck on wood joists at 16 inches on center. Large wood trusses support the sanctuary roof. Three dormered windows on the north and south sides of the church are located between the trusses. There was minimal access to the space above the plaster ceiling to observe the trusses and underside of roof conditions.

## **Observations and Recommendations**

In general the Church appears to be in fair to good condition. The roof has been maintained and there were no reports of major structural concerns that would require immediate attention for structural stability at the time of observation. Roof leaks were observed in two locations in the Parish Hall, see HBA report for more information. Some areas do require further investigation

and structural repair and are described in the probe summary attached to this report. These recommendations should be implemented as soon as possible in order to prevent further deterioration of structural elements. The primary areas requiring immediate attention are the two church entrances, the east basement window, and the Powell Terrace and the related masonry foundation walls. It is recommended that attention be given to regular maintenance tasks such as cleaning gutters and general rainwater control.

### *Roof and Framing*

The roof of the Church was observed to be in fair condition. There were no signs of any structural defects. Some loose debris was observed and the rainwater gutter system is failing or in some cases missing altogether See HBA report for roof covering conditions. Irregularly maintained rainwater control will lead to water damage and the accelerated deterioration of structural elements. Refer to HBA's recommendations for rainwater maintenance to prevent additional deterioration of the structure.

The roof framing could not be directly observed due to inaccessibility during the initial visit. The small portion of the roof framing that was observed did have some minimal water staining (see Photograph 2), but appeared to be dry and did not show any signs of significant deterioration or excessive stress. Access was provided for additional observation of the roof framing during the subsequent probe investigation, and was observed to be in good condition. Refer to the Probe Summary attached for additional information.

### *Sanctuary Interior*

In the Church sanctuary, a few areas were noted to have minor water damage to the existing interior plaster finish which may indicate a structural condition.

These include:

- Previous repairs and newer cracks at the bottom corners of the large Robinson Window (Window #W101). Sees 3 through 6. Removal of plaster finishes during the probe investigation revealed that the cracks did not propagate into the masonry.
- Water damage at the ceiling of the southeast corner of the sanctuary. This may indicate significant deterioration of structural members in the ceiling cavity at this location due to

an active or previously active leak. The probe investigation revealed that the structure beyond is not deteriorated due to water damage.

- Cracks above the altar area at the west end of the sanctuary (see Photograph 7). It is not believed that these cracks are structural related.

See the attached Probe Summary for additional information of these conditions.

### Load Bearing Exterior Masonry Walls

The general condition of the exterior bearing masonry walls above the foundation level is fair to good. The south wall was observed to have significant outward displacement at the top of the wall where it meets the roof. Photograph 8 illustrates this condition. It is believed that the walls are currently stable, however further investigation as described below is required to determine if the displacement is active.

There have been no reports of recent damage on the interior at this area and the finishes do not show any signs of deterioration or cracking indicating that it is likely that the displacement stabilized many years ago and is not active, or the movement has been very slight over a very long period of time.

It is recommended by RSA that the wall be monitored for a length of time required to determine if there is any active movement or if reinforcement is necessary. This can be done by regularly measuring the amount of displacement, such as monthly or quarterly. The condition of the sill plate at the top of the masonry wall was not accessible at the time of observation.

The pointing of the masonry appears to be in good condition, however some spalling and delamination of the outermost stone surface was directly observed at the stones on the East façade (see Photographs 9, 10). The delamination is likely caused from years of weather exposure and many freeze thaw cycles and not due to excessive stress. A through stone crack was observed below the stained glass window (see Photograph 11) and at the basement window lintel (Photograph 12). See Probe Summary for additional investigation; it is recommended that the basement window be infilled with new masonry.

All the masonry throughout the church exterior should be sounded, and any loose material should be removed. For highly damaged stones, it may be necessary to replace or repair stones with the use of stainless steel pins. See HBA report for additional description of stone conditions.

Plant growth was observed on and within the south masonry wall (see Photograph 13). These plants may lead to excessive stress and structural damage of the masonry and should be immediately removed. Water staining and biological growth, which lead to accelerated deterioration of the masonry was also noted along this wall at broken or missing rainwater leader locations (see Photograph 14). Excessive deterioration of structural masonry leads to the destabilization of the structural wall. See HBA report for recommendations for rainwater maintenance and biological growth removal.

### Exterior Elements

A primary source of problematic structural conditions of the Church is found at the porches and terraces of each entrance. The raised planter of the Powell Terrace, (Photograph 15) installed in 1977 along the north wall, appears to be causing significant deterioration to the masonry foundation wall at this location (See Basement and Foundation). It is likely that adequate waterproofing and drainage was not provided at the terrace at the time of construction (See Probe Summary for additional findings and recommendations). It is recommended by RSA that this planter be removed and the foundation wall of the church be repaired.

Settlement, lack of adequate drainage/waterproofing and general wear has resulted in the deterioration of the terrace. Efflorescence was noted on the exterior below the weep hole levels and plant growth was visible between and below the terrace stones. Structural repairs are necessary to prevent further deterioration. (See Photographs 16-18)

The Church entrance on the north façade has a raised porch with a small hipped roof (see Photograph 19). Two wood posts on masonry knee walls that support the roof show significant signs of movement. The movement was observed to be greater than two inches in some locations (see Photographs 19, 20). Cracking and previous repairs of the mortar joints along the knee walls indicate that this is an ongoing problem. The displacement is likely caused by erosion of the soil (rain water control) and differential settlement due to an inadequate foundation for the steps and

porch. It is recommended by RSA that the porch roof be temporarily shored and the knee walls and steps be completely rebuilt on a new foundation.

Similar cracking and signs of movement are found at the steps of the entrance at the southeast corner of the church (see Photograph 21). There is a minimal amount of deterioration at the raised portion of the porch, but the steps are in poor condition. The stone appears to be different than the stone found elsewhere in the Church indicating that they may have been replaced and/or previously repaired. RSA recommends that the stairs and knee walls be rebuilt. Broken and cracked steps are a trip hazard and therefore should be repaired in a timely fashion.

### Basement and Foundation

The First Floor framing, visible from the basement below, appeared to be in fair to good condition overall (see Photographs 23, 24). There are a few select areas with some wood deterioration, particularly along the north foundation wall at the joist pockets (see Photograph 25). Photograph 26 shows a location where a steel lolly column has been introduced to reinforce damaged wood members. It is recommended that the full extent of deterioration be surveyed and proper reinforcement be implemented. The cause for the majority of the deterioration is related to the north wall foundation conditions. The subsequent probe investigation revealed that this is an isolated condition.

The composition and depth of the existing basement floor slab is currently unknown. The general condition is poor to very poor or missing. It is cracked, uneven and un-maintained and it is recommended that the entire slab of the Church basement be cleaned up and/or replaced. A significant portion of the basement floor is unexcavated earth. This area is not currently considered occupied and has limited access for observation.

The majority of the foundation walls in the basement were observed to be in fair to poor condition. Many of the mortar joints were found cracked, broken or very deteriorated. Some efflorescence was noted throughout, but this is not unexpected for a foundation of this type (see Photograph 27). Refer to HBA's report for additional analysis of this condition. In general, it is recommended that the stone and masonry mortar joints be raked and deeply repointed.



The masonry of the existing chimney at the northeast corner were noted to have broken mortar joints and evidence of water infiltration. Repair of individual stones in this area may require pinning in addition to repointing using stainless steel pins.

At the west foundation wall, crumbling masonry and wood posts support the opening into the crawl space of Parish Hall (see Photograph 28). It is recommended that this opening be shored and a stainless steel lintel be installed to support the opening, or the opening could be filled in with new masonry. Two larger masonry piers were observed along the west foundation wall but they do not appear to be supporting anything at this time (see Photograph 29). In addition, the last bay of framing along this wall has double floor joists suggesting that a heavier load was being supported above at one point in time. It is possible that the piers were used to support elements at the altar area, such as the original organ, that have since been removed or may have been part of a previous alteration.

Photographs 30 and 31 show concrete underpinning along the north foundation. Where this wall corresponds with the Powell Terrace on the exterior, significant mortar loss and deterioration of brickwork was observed (see Photograph 32). This much loss in mortar has a significant effect on the structural stability of the wall and requires extensive repair. The full extent of the damage could not be observed as much of the deterioration occurs above the basement ceiling level. See Probe summary for recommendations for further investigation.

While there is no reason to believe that there is an immediate danger or safety concern associated with the advanced level of deterioration observed along the north foundation wall, this is the most crucial structural element in need of repair and it is highly recommended by RSA that additional investigation and subsequent repairs be implemented as soon as possible.

### **Parish Hall**

The existing Parish Hall is also a single story, approximately thirty-foot tall structure with a pitched roof. A lower 12 foot tall section was added in 1947 on the south side for office/support space. The building is wood framed on a concrete and CMU foundation. The main portion of the Parish House has a rectangular footprint, approximately 58 foot by 72 foot and the floor framing is laid out with 4 rows of 7 bays. The floor construction is wood joists at 16 inches on center

supported by steel six or eight inch “I” beams that span between concrete masonry (CMU) piers and to the exterior CMU foundation walls. The floor framing of the addition at the south side could not be observed due to inaccessibility during the initial visit. The subsequent probe investigation revealed that with the floor framing appeared to be in good condition except at the pipe location. See the probe summary for additional information.

The roof is wood framed, supported by seven exposed wood trusses. Interior partitions, as well as the south addition, are constructed of wood stud framing. The main entrance to the building is at the northeast corner where the Parish Hall connects to the Church. The Powell Terrace added in 1977 is just outside the main entrance. A secondary entrance is at the southwest corner of the south addition. It opens to a fenced off area with limited access (see Photograph 33). There are interior connections to both the Church and the Stevens Wing.

#### Observations and Recommendations

In general the Parish Hall structure appears to be in fair to good condition. Few areas require additional investigation or structural repair. The building interior has been well maintained and no major structural conditions were evident. Similar to the Church, the primary structural concerns are related to the exterior conditions; the Powell Terrace at the northeast entrance and the rainwater control including gutters and leaders as well as landscaping maintenance.

#### Roof and Framing

Observations were limited to the exposed interior framing (see Photograph 34) and floor framing visible from the crawl space. The framing observed was found to be in fair to good condition. However, water ingress was observed at the valley in the southwest and at the connections between the west end of the Church and Parish Hall. Photograph 35 shows there is some diagonal cracking of the plaster finishes on the interior at the east end of the main hall. On the exterior, a small section of the southwest corner of the roof hip at the overhang of the far west end of Parish Hall is poorly constructed and should be rebuilt (see Photographs 36, 37). The Probe investigation revealed isolated areas of deterioration at the sill plate that will require replacement. See the Probe Summary for additional information. (See also Photographs 38, 39).

In addition, neighboring trees are encroaching on the property and may be found to cause structural problems to the framing or foundation in the future. It is recommended that tall trees and vegetation be maintained and kept clear of the building's structure.

### *Basement and Foundation*

The crawl space below the Parish Hall was observed from an opening in the west foundation wall of the Church basement. All steel and CMU appeared to be in good condition (see Photograph 40). The foundation below the south addition and the north side of the building were inaccessible and could not be observed while on site. Areas adjacent to the Powell Terrace should be further investigated for similar conditions found at the Church north foundation wall.

### **The Stevens Wing**

The Stevens Wing is a single story, fifteen-foot tall structure with a finished basement. The Stevens Room extends to the north with no basement, and an extension known as the link, connects the Stevens Wing to the Parish Hall. The building is approximately 40 feet by 131 feet. The building is wood framed with bearing CMU construction on a concrete foundation. Steel lolly columns support the floor framing at the open area of the basement. The entrances to the building are from the interior connection to Parish Hall, the main entrance on the east façade, from the one room addition at the far north end, and a basement entry at the southeast corner. The roof framing was not observed.

### Observations and Recommendations

The structure of the Stevens Wing appears to be in good condition. Like the Parish Hall and the Church, the interior and roof appear to be well maintained and there is no evidence of active deterioration. RSA understands that this particular building of the complex has a history of water infiltration at the basement and several interventions have been made. As is consistent with the other buildings, rainwater control and maintenance of exterior porches/terraces are the main conditions that could affect the building structure.

### *Exterior Elements*

The terrace to the north of the Stevens Room is exhibiting signs of disrepair. There is evidence of differential settlement and movement of the masonry and large cracks have developed in the

mortar joints (see Photographs 41, 42). Jacking of the masonry may be taking place due to years of freeze thaw cycles and the use of very hard mortar. Similar jacking can also be seen at the southeast corner basement entry steps (see Photographs 43). It is recommended that the deteriorated areas of the terrace be rebuilt.

The masonry chimney located on the west façade has a few notable cracks which may require further investigation. The surface of many of the bricks has spalled and loose material is present (see Photograph 43). This may be caused by poor brick quality or poor choice in mortar when it was last repointed. (See HBA report).

### *Basement and Foundation*

The basement of the Stevens Wing is painted, exposed CMU and is used as classroom space. In general, the foundation and the slab were observed to be in fair to good condition (see Photograph 47). Below the windowsill elevation, there were no visible signs of deterioration. See HBA report for description of windowsill conditions. It was noted that an intervention had been made creating a trench to carry rainwater to an indoor well along the west wall to reduce flooding and control water infiltration.

### **Additional Comments**

Many of the problems highlighted for individual buildings are characteristic of the entire complex, particularly the condition of the rainwater control. It is recommended by RSA that a civil/geotechnical engineer be consulted to design proper drainage and rainwater control for the entire property.

Rainwater control is the largest and most widespread problem on the property and while not directly a structural issue, improper or absence of rainwater maintenance can and will cause rapid deterioration of structural elements. Refer to HBA's recommendations on the rainwater drainage issues on the property.

Following further investigation and completion of probes the structure can be analyzed for its capacity under the current conditions. Potential design schemes and prospective repairs can then be evaluated and the desired course of action can be determined.

## **PHOTOGRAPHS:**

### **Church**



Photograph 1: View of Church North façade at raised porch entrance.



Photograph 2: View of accessible Church roof framing above the north side aisle. Framing was observed to be in good condition with only minor staining of wood members. Access was limited to above the office only.



Photograph 3: View of southeast corner of Church interior.



Photograph 4: Interior view of large stained glass window (W101). Diagonal cracks were observed in the architectural finishes at each lower corner.



Photograph 5: Closeup view of cracks in plaster at window corner.



Photograph 6: Southeast corner of sanctuary. Cracks and water damage visible.



Photograph 7: View of west end of sanctuary space. Diagonal cracks were observed at plaster finishes.

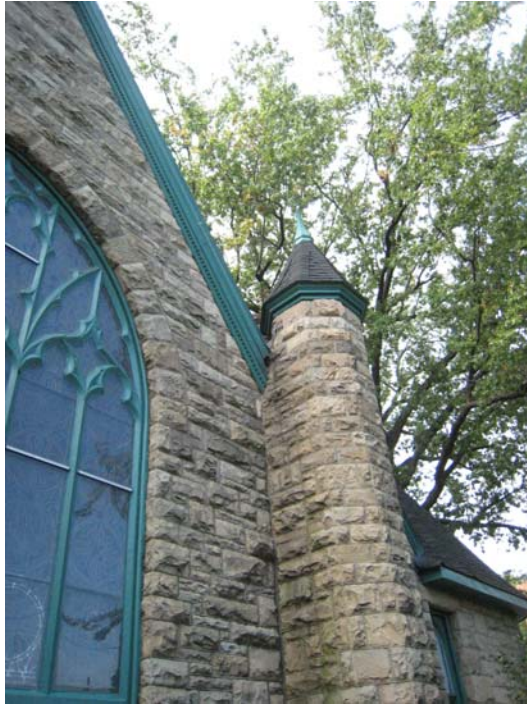


Photograph 8: View of Church South façade showing the observed deflection at the top of the wall.



Photograph 9: View of main stained glass window from exterior (W101).





Photograph 10: Towers to each side of church appear to be in good condition.



Photograph 11: Limited cracks observed through masonry units.





Photograph 12: Cracks observed at the basement window lintel. (W021)



Photograph 13: Plants were observed growing within the plane of the exterior masonry wall of the Church.



Photograph 14: Water staining observed on the south façade of the Church. The missing drain allows rainwater to keep the masonry in an almost constant state of saturation. This leads to the deterioration of the stone and mortar and could thus compromise the structural integrity of the wall.



Photograph 15: View of Planter at the Powell Terrace on the north façade of the Church.



Photograph 16: Displacement observed at the Powell Terrace. Other forms of deterioration observed at the terrace include displacement, through stone and mortar joint cracking, efflorescence staining and signs of settlement.



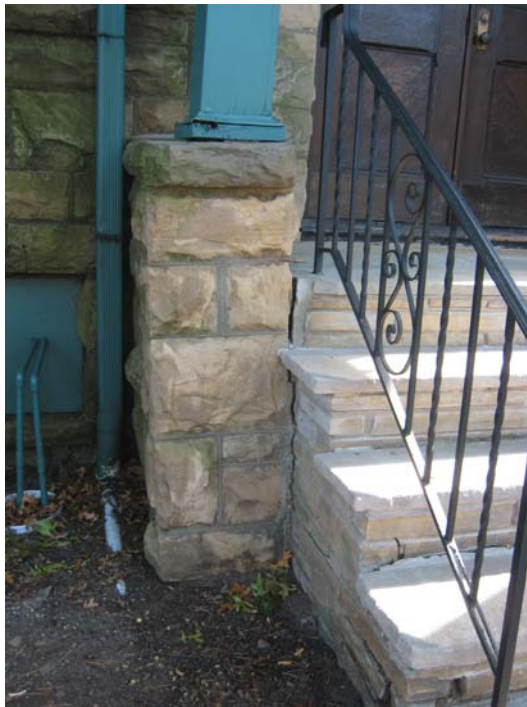
Photograph 17: Efflorescence at the Powell Terrace.



Photograph 18: Un-maintained stair at Powell Terrace.



Photograph 19: View of conditions at north façade porch entrance of the Church. Settlement and/or movement has lead to significant displacement of porch kneewall.



Photograph 20: Crack at stair showing displacement of masonry.





Photograph 21: Excessively wide mortar joint indicates a previous repair was done at point of displacement. New cracking indicates the movement continues.



Photograph 22: Cracking and displacement observed at the southeast corner of the Church.



Photograph 23: Typical girder support at masonry pier.



Photograph 24: Typical wood post support at masonry pier observed in good condition.



Photograph 25: Loose material/possible rot observed at beam pocket.



Photograph 26: Previous repair/stabilization at basement north wall. Steel column has been added to support wood member.



Photograph 27: Typical basement wall conditions observed along the east wall include cracked, open mortar joints and efflorescence. Repointing is necessary to prevent further deterioration of wall.



Photograph 28: View of inadequate shoring/opening support at connection between Church and Parish Hall crawl space.





Photograph 29: Brick piers at shared Church/Parish Hall foundation wall.



Photograph 30: Concrete underpinning observed at north basement wall.



Photograph 31: Brick/mortar dust has accumulated at the concrete ledge and on the floor along the north foundation wall.



Photograph 32: Looking up at poor brick condition at north foundation wall of the Church along the inside face of the Powell Terrace. Significantly deteriorated brick/mortar joints require structural repair.

## Parish Hall



Photograph 33: South façade of Parish Hall addition.



Photograph 34: Exposed Roof/Truss Framing at the Parish Hall.



Photograph 35: Cracking observed in plaster finishes on east interior wall at the Parish Hall main room.





Photograph 36: Roof at Parish Hall at west end not adequately detailed.



Photograph 37: Close up view of roof detailing. Repair required. (See HBA report).



Photograph 38: Parish Hall extension south façade.



Photograph 39: Potential rot condition at sill plate



Photograph 40: Floor framing observed at Parish Hall crawl space.

## Stevens Wing



Photograph 41: Open joints and movement observed at terrace north of Stevens Room.



Photograph 42: View of terrace north of Stevens Room.

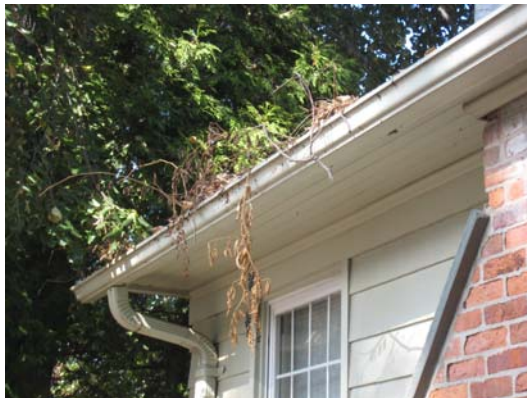


Photograph 43: Cracking observed at retaining wall.





Photograph 44: Condition of chimney at Stevens Wing west façade.



Photograph 45: Gutters full of debris.



Photograph 46: Debris and plant overgrowth lead to accelerated deterioration of structural foundations at west side of Stevens Wing.



Photograph 47: Conditions at Stevens Wing interior basement west wall.

## **Addendum: February 7, 2008**

### **Probes Summary:**

On February 1, 2008, RSA met with HBA to review the probes recommended in this report. The following is a summary of the probes completed and the conditions reviewed at each location. Refer to probe key plan and photographs at the end of this section.

#### **Probe P1 – Remove Soil at Raised Terrace North Church Façade**

Expose condition of exterior basement masonry wall below grade of raised entry terrace. Allow for a minimum 2’-6” soil depth to be removed. Replace after completion of probe. (See Photograph P1.0)

- This probe revealed that the exterior surface of the masonry wall below grade is in good condition, although no waterproofing was observed between the planter and the masonry wall. The mortar joints were intact and there were no signs of surface deterioration of the facing stones or mortar. This indicates that the extensive deterioration found on the interior surface of the foundation and first floor masonry walls is likely due to trapped moisture within the wall.
- The planter holds saturated soil against the masonry allowing for increased water penetration of the stones. The hard cement mortar then traps the moisture within the wall forcing it to move slowly through it. In doing so, the moisture over time, deteriorates the bedding mortar and accelerates the deterioration of the masonry.
- See HBA report for recommendations on removing the planter and repointing the exterior. In addition, deep raking and repointing on the interior surface of the stone and brick masonry wall at the lower portion of the first floor level as well as the foundation is recommended by RSA.

#### **Probe P2 – Expose Joist/Girder pockets at Church Basement, North and South Wall**

Expose condition of joist at support pocket, (2) locations; (1) at north cellar wall, (1) at south basement wall. Remove surrounding masonry and mortar to expose full depth of joist/girder in pocket. Infill/patch to match existing after completion of probe. (See Photograph P2.0)

- Two alternate locations to investigate the condition of the joists pockets into the masonry wall were completed, one at the north wall and one at the south wall. Both locations revealed that the joist ends are in good condition. The wood was found to be dry and appeared to be free of rot or insect damage. The amount of bearing for each was adequate.
- Based on this investigation, it appears that the rotted condition observed previously at a joist along the north wall (see RSA report above and Photograph 26) is an isolated condition rather than a systemic problem. A permanent repair of this particular joist should be designed as previously recommended.

#### Probe P3 – Roof of Church, West Façade

Provide access to interstitial attic space above plaster ceiling of the Church. Recommended location for access is at louvered opening at the west church façade. Provide equipment necessary to complete the examination of the roof framing including lights, temporary access platforms, etc. (See Photograph P3.0)

- Access into the attic space above the plaster ceiling of the Church was still very limited during this investigation. RSA was able to observe the general condition of the roof framing, but was not able see all conditions or the top sill plate at the connection to the exterior walls due to inaccessibility. What was observed was found to be in good condition. The wood appeared to be dry and did not show any signs of deterioration or excessive stress.

#### Probe P4 – Expose Roof Framing Conditions Church Interior, Southeast Corner of Sanctuary

Expose condition of roof framing from the interior by removing a section of ceiling plaster finish near the southeast corner of sanctuary. Make roof framing above visible. Allow for a minimum 2'-0" x 2'-0" removal of ceiling finishes at each location. (2) Locations: At noted water damage and a location with no damage. Patch ceiling to match existing upon completion of probe. (See Photograph P4.0-P4.2)

- Two small probes were completed at the southeast corner of the sanctuary. The first one, just below the decorative wood trim revealed the original decorative wall framing beyond and was found to be in good condition. See HBA report for additional information.

- The second probe above the wood trim between the decorative ceiling joists revealed the roof framing at this location. In general, the wood framing appeared to be dry and in good condition. This area was chosen due to evidence of water damage of the interior finishes. On this particularly rainy day of probe investigation no leaks were observed and all framing was found to be dry. This indicates that the water damage is likely due to a previous leak that has since been repaired.
- A horizontal wood member along the sill appeared to be damaged at the easternmost end due primarily to animal activity resulting in a significant loss of section. It is recommended by RSA that the damaged portion of the wood member at this location be replaced.

#### Probe P5 – Corner of Stained Glass Window Church Interior

Remove an 18” x 18” section of plaster finishes on the Church interior to expose the condition of the existing masonry beyond at the lower corner of the large stained glass window. Patch to match existing after completion of probe. (See Photograph P5.0)

- The removal of the interior plaster finishes at the lower corner of the stained glass window at the East end of the sanctuary revealed that the condition of the masonry beyond was in fair to good condition. No cracks were observed through the brick or mortar joints. However, the mortar joints were set back in the bedding of the bricks and repointing of the interior brick is recommended.

#### Probe P6 – Basement Window Lintel Condition at East Façade of Church

Remove plywood window infill from exterior at the basement window on the east façade to expose the full extent of the window lintel. Patch/replace to match existing after completion of probe. (See Photograph P6.0, P6.1)

- The removal of the plywood at the east basement window of the church revealed that stone lintel on exterior is solely for the support of the exterior facing stone, and a long shallow brick arch acts as the support for the masonry wall above. Wood framing has been added as additional support for the opening. The brick did not appear to be deteriorated, but this is a fairly long shallow span for a brick



arch. It is recommended by RSA that the basement window be infilled with new masonry to provide sound support for the wall above.

#### Probe P7 – Expose Existing Sill Plate at the Parish Hall Extension, South Façade

Remove an 18” x 18” section of exterior finishes at the base of the wall to expose the condition of the existing sill plate of Parish Hall extension. Patch to match existing after completion of probe. (See Photograph P7.0, P7.1)

- Two locations of the sill plate along the Parish Hall Extension South façade were revealed. One location, coordinated with Probe (8) found the sill to be in good to very good condition with no apparent damage or deterioration. The second condition just below a window showed signs of rot and water damage. It is likely that additional similar conditions may be found at other locations. At locations where significant rot and water damage is observed, the damaged sill plate should be removed and replaced. Provide for 30% sill plate replacement.

#### Probe P8 – Floor Probes at Parish Hall Extension, (2) locations

Remove floor finish and substrate to expose floor framing below, (2) locations. Locations to be determined based on accessibility and floor finishes. Locations are to be in inconspicuous locations such as a bathroom or office corner. Allow for a minimum of 2’-0” x 2’-0” area removal of floor finish at each location. Patch floor to match existing after completion of probe. (See Photograph P8.0, P8.1)

- One probe was completed at the floor of the Parish Hall Extension to reveal the condition of the floor framing. The particular location chosen was next to a pipe and had a significant amount of rot at the area directly adjacent to the pipe. All other observed framing was found to be dry and in good condition. This localized area will require repair, but in general the floor framing is in good shape.

#### Probe P9 – Basement Window Sill at Stevens Wing, West Façade

Remove soil, debris and/or plywood to expose condition of buried windowsill at Stevens Wing basement window along west façade. Allow for up to a depth of 12” of soil to be removed for the full width of window. Replace soil after completion of probe. (See Photograph P9.0)

- Several windowsills were revealed along the west façade of the Stevens Wing. Due to rainy weather conditions and standing water covering the sill, a close up examination of the sill conditions could not be completed at the time of observation however they were shown to be very wet and at varying levels of deterioration. See HBA report for recommendations at the window wells on the west wall of the Stevens Wing.

### **Additional Comments/Observations**

The church has expressed concerns regarding the apparent settlement along the south façade of the church. Signs of movement and potential settlement cracks were observed at the southeast entrance of the church, although there were no visible cracks or damage to interior finishes to indicate that this is a recent or abrupt condition.

RSA has learned that a large tree was removed from the area just to the south of the church exterior wall. The observed settlement may be related to the decomposition of the tree below grade. The settlement may be very slowly active, or has since stabilized. It is recommended by RSA that the south façade be monitored for settlement by marking benchmarks and taking periodic measurements. In addition, during the dewatering scope of work, it is recommended that a geotechnical engineer be consulted to review this condition.

Probe Photographs:



Photograph P1.0: Exposed condition of stone masonry exterior along north wall of church at the Powell Terrace.



Photograph P2.0: Joist pocket into masonry wall at the north foundation of church.



Photograph P3.0: Roof framing of Church.



Photograph P4.0: Originally exposed wall elements at the south east corner of sanctuary.



Photograph 4.1: Conditions of roof framing at southeast corner.



Photograph P4.2: Evidence of animal damage at roof framing at southeast corner.



Photograph P5.0: Condition of inside face of east masonry wall. Material coming across the masonry at the top of the opening appears to be wire or a sliver of wood lath. It is not a crack.





Photograph P6.0: Condition of basement opening lintel.



Photograph P6.1: Shoring of basement lintel is providing some structural support for the very shallow brick arch.



Photograph P7.0: Condition of sill along the south wall of the Parish Hall addition, first location.



Photograph P7.1: Additional location along the South wall of the Parish Hall addition. The condition of the sill is very poor below the window.



Photograph P8.0: Floor framing of the Parish Hall addition.

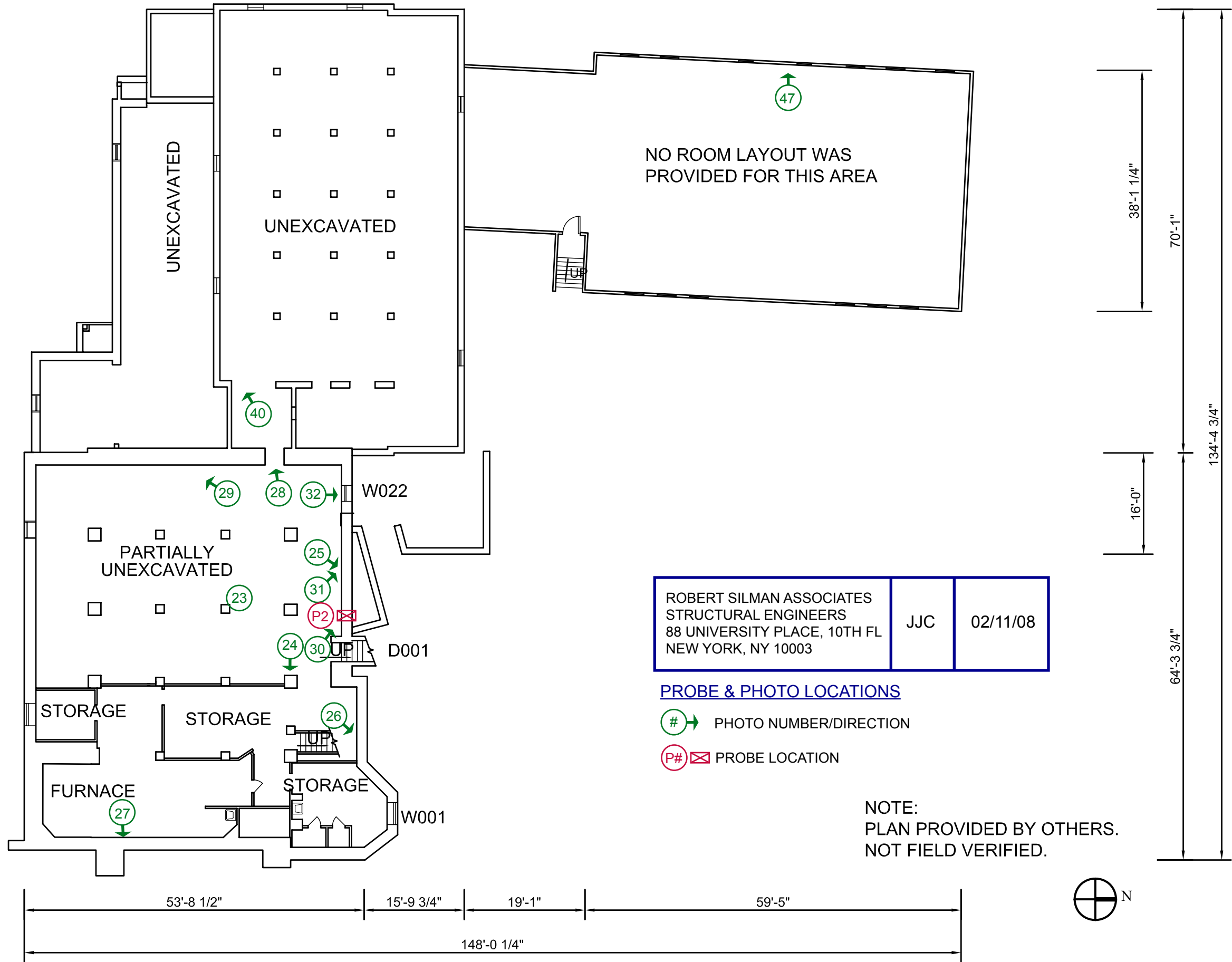




Photograph P8.1: View of sill along the Parish Hall addition south wall from the interior.



Photograph P9.0: Windowsill along the west wall of the Stevens Wing.

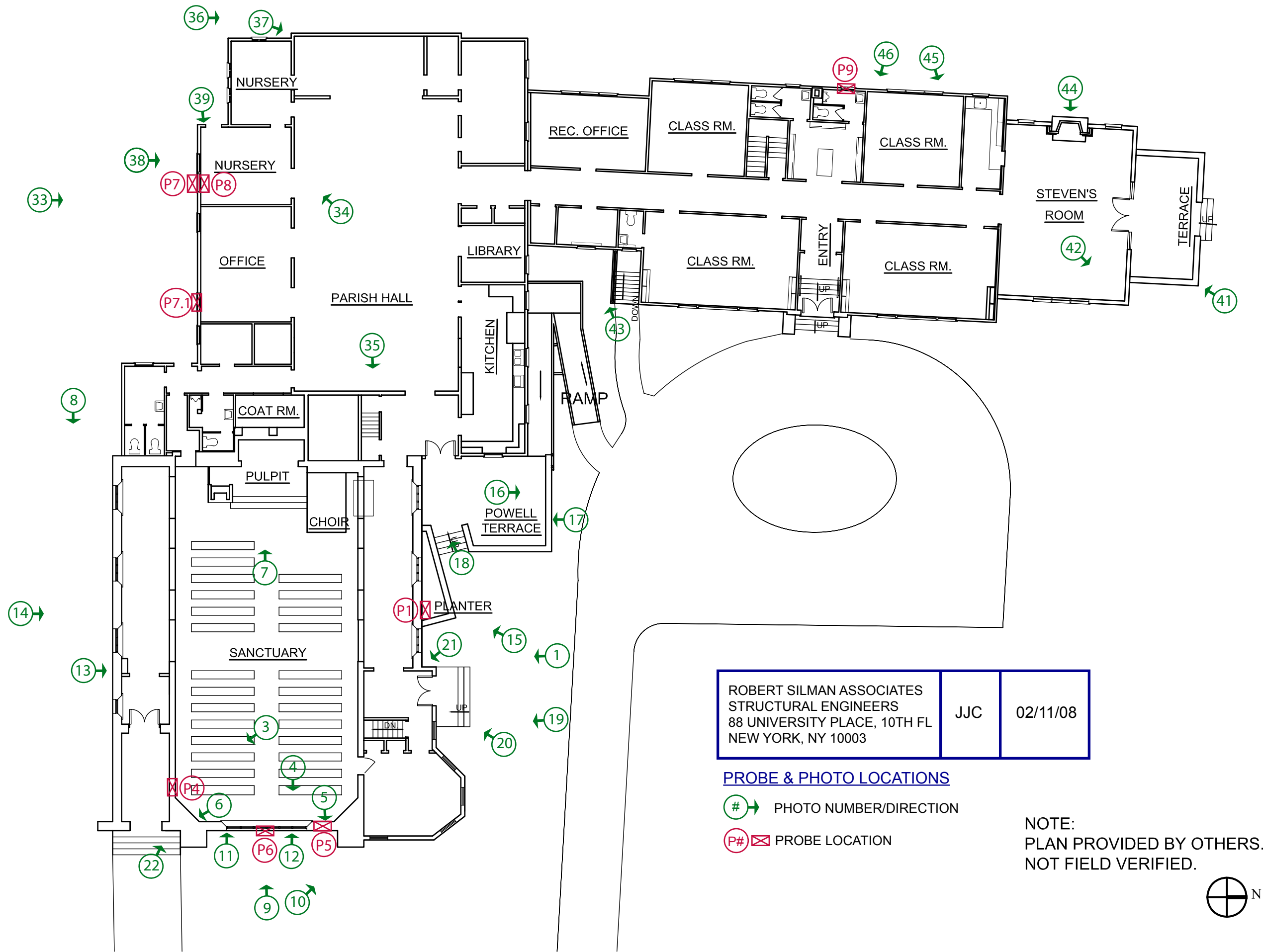


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PROBE & PHOTO LOCATIONS

- (#) → PHOTO NUMBER/DIRECTION
- (P#) ⊠ PROBE LOCATION

<b>Historic</b> Building Architects, LLC 312 West State St. Trenton, NJ 08618 TEL 609 393 3999 FAX 609 393 4333 Certificate of Authorization # AC 245 Expires 01/31/2008	Revisions & Submissions		<b>Preservation Plan</b> <b>First Unitarian Society of Plainfield</b> 724 Park Avenue Plainfield, New Jersey 07060	<b>BASEMENT PLAN</b>	<b>A-1.00</b>
	Date: 01/11/08	Drawn by: CB/AJ			



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**PROBE & PHOTO LOCATIONS**

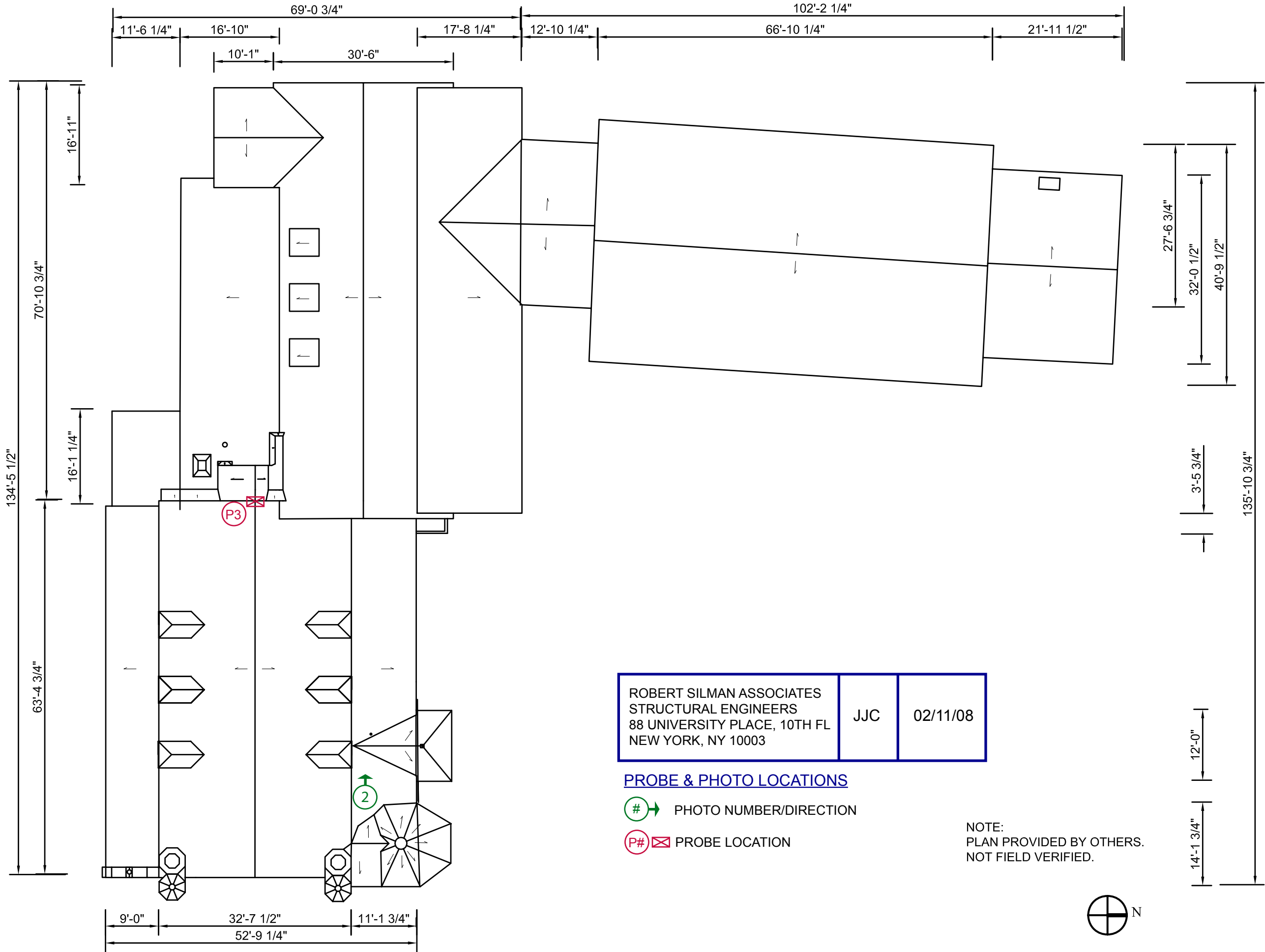
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NOTE:  
PLAN PROVIDED BY OTHERS.  
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Revisions & Submissions Date _____ _____ _____			A-1.10

ANNABELLE RADCLIFFE-TRENNER, P.E., N.J.# AI 13776  
MICHAEL CALAFATI, P.E., N.J.# AI 09029



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<div>Preservation Plan <b>First Unitarian Society of Plainfield</b> 724 Park Avenue Plainfield, New Jersey 07060</div>		<div>ROOF PLAN</div>			<div>Revisions &amp; Submissions</div> <div>Date</div> <div></div> <div></div> <div></div> <div></div>		<div>A-1.20</div>